



Coastal fishery stakeholders' perceptions, motivation, and trust regarding maritime spatial planning and regional development: The case in the Bothnian Sea of the northern Baltic Sea

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ABSTRACT

The European Union (EU) promotes a sustainable blue economy in the coastal and marine regions. In Finland, the regional development objectives are defined at the national and regional levels. Maritime spatial planning (MSP) is a tool to reconcile the sea's different uses. This study considers developing collaborative practices in regional planning to help meet regional development objectives. The MSP participants representing the coastal fishery (fishing and fish farming) in the Satakunta region, Finland, exemplify a local stakeholder group. Coastal fishery is a demanding and highly regulated livelihood, with the potential to grow as local food is trending. A mixed-method approach was used to examine MSP participants' and fishery experts' perceptions about regional cooperation and the MSP process. The semi-structured interviews focused on three main themes: regional cooperation and synergies, conflicts and threats, and interest in regional collaboration or establishing secondary businesses. Questionnaires 2019 and 2021 examined stakeholders' engagement (intrinsic motivation) and social trust towards the planners in the MSP process. The need to tackle the challenges of coastal fishery dictates coastal fishery participants' perceptions regarding the fishery business's development in a regional context. Despite the collaborative approach, the first Finnish MSP round did not make a significant difference in the coastal fishery's status as a stakeholder group. MSP processes and developing the sustainable blue economy are part of the regional development framework, requiring a level playing field and mutual trust among stakeholders. The regional development of marine and coastal areas would benefit from a joint forum for stakeholder interaction built upon MSP. Collaboration could strengthen the integrative and comprehensive management of sea uses and resources.

1. Introduction

In the European Union (EU), Integrated Maritime Policy (IMP) is a framework to promote sustainable development of the coastal and marine regions with a more coherent and coordinated approach to maritime activities [19]. IMP encompasses aspirations to protect and improve the marine and coastal environment while growing the blue economy sectors [85]. EU also aspires to smart, inclusive, and sustainable growth [21]. Initiatives of a sustainable blue economy are implemented by national or regional policies and strategies in the EU's member countries [19,24,26]. Maritime spatial planning (MSP) is considered a practical tool for reconciling the many interests and uses of the marine and coastal areas [23,27,40]. MSP supports the sustainable

blue economy's development as the maritime spatial plans outline the directions to further develop marine and coastal areas [22,26].

The participatory approach emphasises engaging the stakeholders and the public in the environmental decision-making process to meet socially and environmentally beneficial goals, e.g. advancing social justice and the ideals of democratic participation and increasing the acceptance of the planning decisions [9,78,79]. The participatory approach's ideals have been adopted widely to promote public participation in environmental decision-making, e.g. by Aarhus Convention in 1998 [96]. Collaborative governance was established as a paradigm of public administration in democratic systems, engaging public agencies and private stakeholders in consensus-oriented deliberative decision-making (e.g. [29]). MSP in the EU is based on the transparent

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and inclusive principles of collaborative governance, which emerge in practice as collaborative planning [33,34,58]. Collaborative practices are central to the ecosystem-based planning applied in MSP [97].

Collaborative planning is based on the inclusion and interaction of stakeholders [39]. “Participants’ willingness to pool knowledge and ideas in the search for solutions to shared and common problems” is essential for the planning process [58]. This study examines the issues that must be considered when developing collaborative practices to achieve regional development objectives. The perceptions of the MSP process’ participants representing small-scale coastal fishery in the Satakunta region, Finland, have been gathered and analysed as a case study. Fishery is a traditional use of the sea and an example of a small stakeholder group of relatively low national economic importance [83, 84]. The coastal fishery industry has conflicting interests with the existing and new usages of marine space, including offshore wind farming, leisure activities, and nature conservation [44,53,68], which must be considered in MSP and the blue economy’s regional development. Strict fishing quotas and permitting processes regulate the fishery industry [20]. Among the MSP stakeholder groups, the coastal fishery participants represented a demanding and highly regulated livelihood, with the potential to grow as local food is trending.

In Finland, regional development is based on the development objectives and priorities defined from national and regional perspectives that comply with the EU’s policies [55]. Regional planning guides land and sea usage to achieve the development objectives set at the national and regional levels [56,57]. Legally binding land-use planning and non-binding, strategic MSP are regional planning tools (e.g. [38]). While the regional land-use planning covers the territorial waters, MSP also covers the territorial waters and Exclusive Economic Zone of Finland [30]. Therefore, achieving regional development objectives in marine areas and MSP are inseparable.

The MSP process from 2017 to 2021 was the first concrete measure of the EU’s IMP that equally concerned all blue industries in Finland [30, 60,61]. Although the participatory approach has been applied in land-use planning for a long time [10], coastal fishery stakeholders have been involved mainly via procedures common to the public. This setting allowed the study of the MSP’s fishery participants’ perceptions from the beginning of the planning process, even though MSP planners knew their challenges and contradictions with other authorities (cf. [59,64, 83]). The study focuses on the MSP’s fishery participants’ perceptions of regional cooperation and the MSP process to facilitate developing collaborative planning practices.

The mixed-methods approach was adopted using data produced by two cooperative projects (see the study’s workflow in Fig. 1). Before the official MSP measures, the coastal fishery stakeholders (including fishers and fish farmers) were interviewed about the opportunities to develop coastal fishery to discover their starting point for regional cooperation and a collaborative approach to regional development. The interviews addressed three main themes central to developing regional cooperation and collaboration in developing the sustainable blue economy: regional cooperation and synergies, conflicts and threats, and interest in regional collaboration or establishing a secondary business. Fishery experts familiar with coastal fishery’s practical development were also interviewed to gain their perceptions about coastal fishery entrepreneurs’ opportunities to develop fishery businesses.

Motivation and trust were measured to find indications of MSP participants’ commitment and success or failure of the collaborative actions in the MSP process (Fig. 1.). Stakeholders’ commitment is critical regarding the success of the process and closely relates to trust [1, 29,102]. According to Ansell and Gash [1], in the cyclic collaborative process, the dialogue builds trust, fostering a commitment to the process and, thus, a shared understanding. Trust is also emphasised and desired in collective actions connected to managing complex and conflicting issues, such as wildlife management (e.g. [46,74,90]), fisheries management [31,36,41,63], and regional development by MSP [4,11,76, 93]. Trust improves governance, indirectly affecting economic growth

positively [6]. Combining the results of this study, the issues that should be further considered in developing the regional planning activities during the second MSP round were discussed and concluded to pursue the objectives of regional development more effectively in collaborative MSP.

2. Regional development, MSP, and fishery in the Satakunta region

The Finnish Ministry of the Environment is responsible for national-level guidance and development of land-use planning and MSP [57]. The Regional Councils are responsible for drawing up strategic programmes and implementation plans every few years based on the national priorities of regional development [56]. Coastal Regional Councils are responsible for legally binding regional land-use planning, covering territorial seas. In their respective sea areas, Regional Councils are also accountable for MSP. The Maritime Spatial Plan (MSPlan) 2030 was prepared in collaboration with national, regional, and local stakeholders [30,60,61]. Finland’s territorial waters and Exclusive Economic Zone have been divided into three planning areas for MSP (Fig. 2). The MSPlan 2030 is a legally non-binding strategic document supporting land-use planning and regional development by producing information about the opportunities and conditions of maritime sectors and the marine environment. The planning process of Finnish MSP included regional scenario workshops and the hearing of the scenario draft in January–October 2019, and vision and target workshops and the hearing of the draft plan in September 2019–May 2020 ([30,62], see also Fig. 1). A thematic workshop considering fishery was arranged on 30 January 2020.

The Satakunta region covers 11,493 km², of which 3224 km² is the territorial sea area in the Bothnian Sea (Fig. 2): a brackish sea area with a narrow coastal archipelago and large open seas. The blue economy’s activities include fishery and aquaculture, maritime industry and transport, marine energy production, diving, tourism and leisure activities, and underwater construction [2,48]. Essential species in commercial coastal fishing are herring, sprat, salmon, European whitefish, and perch; in fish farming, the species is primarily rainbow trout. The long-lasting tradition of fishing with nets and fyke nets prevails, although trawling is also done.

3. Material and methods

3.1. Screening and recruiting fishery stakeholders as participants in MSP

In Finland, fishing is often a family business, sometimes including processing catches and selling the products (cf. [82,84]). Many fishers or their spouses have other steady income streams, such as wage-earning work in another branch of the industry, education, or health care [84]. Such was also the situation in the Satakunta region in 2018. According to official statistics [28], 188 commercial marine fishers (including natural and juridical persons) were registered. Approximately 20% (37 persons) had an average turnover for fishing during the past three accounting periods of over 10,000 euros.

Connecting fishery statistics with business IDs was impossible because of privacy regulations. Furthermore, Finland’s blue economy is undefined as a separate branch of industry (e.g. [48]). Collecting information on the organisations with business IDs and their main office in the Satakunta region was performed during the summer of 2018. The information was collected manually from websites, free online information services (e.g. [49]), and previous studies [48,74]. In the autumn of 2018, 75 coastal fishers, 25 enterprises connected to marine tourism, 14 regional fishing collectives or support organisations, and three active fish farms in the Satakunta region were identified and contacted. The aim was to inform about MSP and invite them to the first MSP workshop on 14 January 2019. The workshop focused on the fishery stakeholders to launch dialogue between planners and fishery stakeholders and

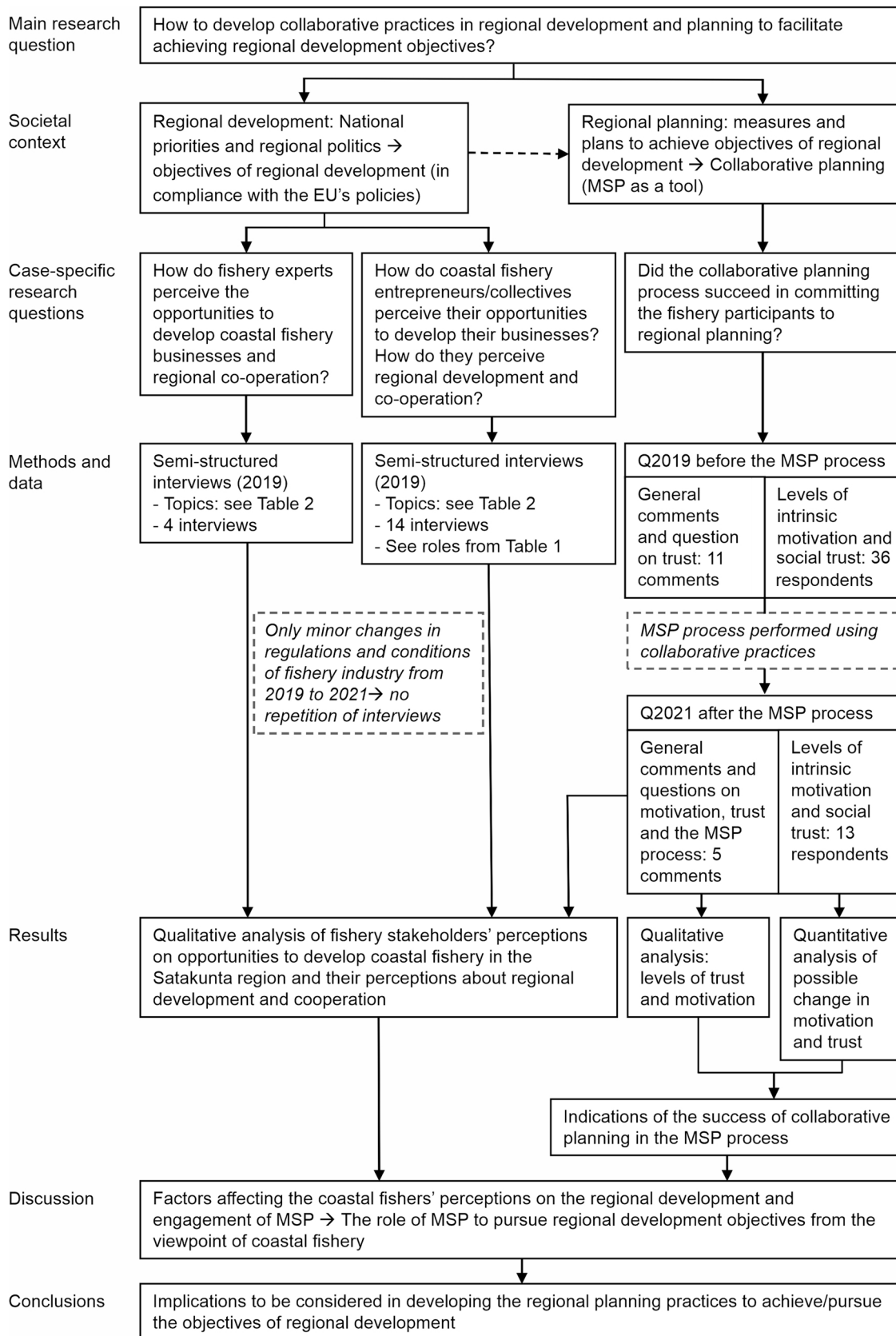


Fig. 1. A schematic representation of the mixed- methods approach and workflow of this study.

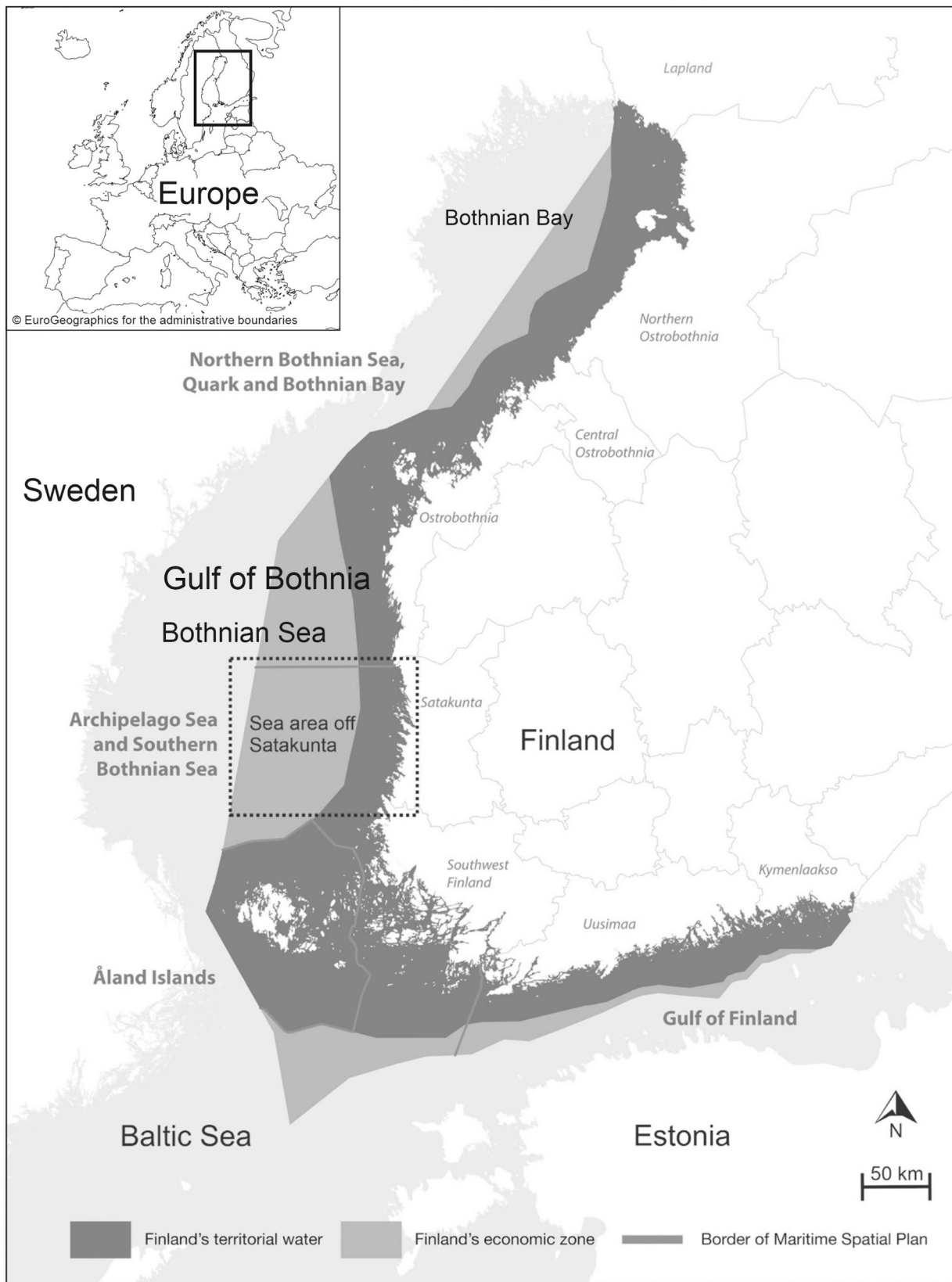


Fig. 2. The Satakunta region in the Southern Bothnian Sea and the maritime spatial planning areas in Finland (adapted from MSP [60], p. 7).

engage the fishery stakeholders in MSP and regional development. Contact was primarily via email; for entrepreneurs with no email, contact was attempted via text message, phone call, and even by post. The study did not include inland fishery enterprises or large national and international companies operating in the Gulf of Bothnia's open sea areas.

Invitations to the MSP workshop acted as recruiting in the study, which was performed along with the official MSP process. The coastal fishery stakeholders participating in the study formed the study sample as the focus was to examine their perceptions. Therefore, the study does not provide a representative sample of perceptions of all coastal fishery stakeholders in the Satakunta region.

3.2. Interviews

Two groups of five attended the MSP workshop on 14 January 2019. Eight interviews were by phone or remote connections from January to March 2019 for those who did not attend the workshop. To complement the views of entrepreneurs and fishing collectives, four experts of public administration and non-profit organisations who had worked in national and regional projects promoting Finland's fishery industry were interviewed. The aim was to acquire their perceptions of the conditions and premises for the opportunities to develop coastal fishery (Fig. 1, Table 1). Another round of the interviews was not arranged in 2021, as the fishery industry's regulations and conditions had not changed significantly (see Fig. 1).

The semi-structured interviews were confidential, in Finnish, and recorded on tape. Detailed notes of each respondent's answers were made – individually and in group interviews. If all a group's respondents answered or agreed on an issue, it was counted as five mentions. The group and personal interviews were later analysed by itemising all answers and grouping the statements according to themes. All questions regarding three main themes were presented to the interviewees (Table 2). However, the interviewees could answer to the extent they wanted and emphasise the issues according to their views. If possible, the interviewer helped them elaborate on their answers with varying follow-up questions. This relatively free-form style of semi-structured interviewing allowed for easier consideration of delicate issues, such as conflicts (e.g. [54]).

3.3. Measurement of motivation and trust

Various studies have focused on the motivation to participate in actions related to the living environment, particularly the extrinsic factors such as gaining socio-political benefits [94]. Selecting intrinsic motivation reflects more on Finnish MSP's strategic and legally non-binding status, as plans' effects take shape indirectly via the lawfully binding planning and permitting processes and regional development. Intrinsic motivation as an indicator is based on the self-determination theory (SDT) [14–17]. SDT comprises the basic psychological needs of competence, autonomy, and relatedness, affecting the human well-being and performance [15,16]. Intrinsic motivation

Table 1
Respondent and interviewee roles as MSP stakeholders (*in 2019 interviews some fishers were also representatives of fishing collectives).

Role	Interviews 2019		Questionnaire 2019		Questionnaire 2021	
	N	%	N	%	N	%
	Coastal fishing*	8	44	24	67	7
Fishing tourism	4	22	1	3	1	8
Fish farming	2	11	1	3	1	8
Collective / support /other			10	28	4	31
Fishery experts	4	22				
Total	18	100	36	100	13	100

Table 2

The main themes and questions of the interviews for both entrepreneurs and representatives of fishing collectives (N = 14) and experts on fishery (N = 4). *The experts were not entrepreneurs.

Theme	Entrepreneurs / fishing collectives	Experts on fishery
Regional cooperation and synergies	Which types of companies or other actors would you like to work with in the Satakunta region to develop your own activities? (Not only in your field of business, but possibly with others as well.) Do the fishery stakeholders currently see opportunities or benefits, or conflicts and threats between their own and other business activities (for example with tourism)?	How have the operators of innovation programs/platforms engaged in joint enterprise development in projects driven by your organisation? How could cooperation of businesses be developed in the Satakunta region? Which types of new openings or synergies?
Conflicts and threats	Do the fishery stakeholders currently see conflicts and threats between their own and other business activities?	What are the obstacles or adverse factors of developing joint business activities: in the sea and water basins in general, in the Satakunta region, in the activities or projects coordinated by your organisation? N/A*
Entrepreneurs' interest in regional collaboration or to establishing a secondary business	Would you like to be involved in regional co-development or innovation of business activities? In what type of collaboration or innovation would you be able or willing to participate? What would benefit your own business? Would you be interested in a secondary occupation or part-time production of tourism, welfare or other services? What types of obstacles or challenges would this entail?	

connects to the actors' inner goals and values, i.e. the participants find the activity interesting or important; thus, the motivation lies in the behaviour [15,103]. The intrinsic motivation level describes participants' engagement in the action [14,103]. The following elements measured intrinsic motivation: autonomy, competence, and relatedness (Table 3; cf. [15,103]).

Trust is one indicator of success in participatory planning [13,42]. The concept of social trust was applied in this study. Social trust describes the willingness to rely on those formally responsible for developing policies and taking measures – crucial for public governance in democratic societies [12,71,87]. Trust is a cognitive phenomenon depending upon knowledge and belief [67]. However, people may not choose to trust based on a detailed understanding of an agency's competence, fairness, or consistency but perceptions of similar values and opinions (e.g. [69]). Therefore, shared values and perceived similarities predict social trust. The salient value similarity (SVS) model states that people trust others who seem similar to themselves or when they feel the agency shares similar goals, values, and opinions [71,75,87,98,101]. SVS indicates that people who perceive similarity and salient values with an agency will be more likely to trust that agency and

Table 3
Statements translated from the Finnish questionnaires Q2019 and Q2021. Statements concerning motivation and social trust were identical in both questionnaires. Statements concerning opinions after the MSP process were presented only in Q2021 (EX1–2).

Variable	Indicator	Abbreviation	Statement
Intrinsic motivation	Autonomy – a person’s perceiving the matter as theirs and appreciating the goals that participating in MSP promotes	MOT1	I feel that it is important to participate in the maritime spatial planning process in the Satakunta region.
	Competence – a person’s experience of doing their part and providing essential knowledge	MOT2	I have knowledge that supports maritime spatial planning in the Satakunta region.
	Relatedness – a person’s feelings of being a relevant part of the group and community working for the common goal: the maritime spatial plan	MOT3	I feel that I am an essential part of maritime spatial planning in the Satakunta region.
Social trust	Objectivity – proper and fair knowledge base	ST1	I trust that maritime spatial planners in the Regional Council of Satakunta use right and fair information when planning the maritime spatial plan.
	Transparency – open information channels	ST2	I trust that maritime spatial planners in the Regional Council of Satakunta inform openly about the MSP.
	Caring/empathy – willingness to act in a way that takes care of others’ needs, also indicates similarity of values	ST3	I trust that maritime spatial planners in the Regional Council of Satakunta understand and care for the needs of my stakeholder group.
	Perceived competence – skills to perform the task	ST4	I trust that maritime spatial planners in the Regional Council of Satakunta are competent to plan MSP that takes care of the needs of my stakeholder group.
	Similar values	ST5	I believe that maritime spatial planners in the Regional Council of Satakunta share my values about how to take my stakeholder group into consideration in MSP.
Opinions after the MSP process (Social trust)	Transparency – open information channels	EX1	I received information on MSP easily and adequately.
	Perceived competence – skills to perform the task	EX2	The needs and scope of action of fishery have been considered in MSP.

accept its actions [69–71,75,90,98]. Social trust may be characterised by the cognitive components of trust [70,71]. Here, the social trust reflects the MSP participants’ trust in the planning authorities. During the MSP process, social trust was measured with the cognitive components enhancing trust (Table 3; [71]): objectivity, transparency, perceived competence, and caring, including empathy. Similar values were asked and caring/empathy also indicates the similarity of values [71].

The first questionnaire’s paper version (Q2019, see Table 3 and

Appendix) was presented and filled out in the MSP workshop in 2019. The questionnaire’s online version was available over the next two months for anyone interested ([100]). Q2019 was announced in the Satakunta region by a social media channel connected to MSP and those involved in fishery. Events for stakeholders were not arranged after the Finnish MSPlan 2030 was approved in December 2020 [62]. Therefore, the online questionnaire surveyed the possible change in the fishery stakeholders’ motivation and trust (Q2021). The questionnaire was open in February 2021. The open link to Q2021 was emailed to 71 fishery stakeholders identified as potentially more interested in MSP and developing coastal fishery during the screening and contacting phase in 2018: 40 coastal fishing enterprises, 19 fishing tourism enterprises, three fish farms, and nine fishing collectives or support organisations.

The questionnaires had seven identical statements regarding the motivation to participate in MSP and social trust levels towards planners conducting MSP (Table 3). Two additional statements of the post-process perceptions on transparency and competence in Q2021 indicated the process’s success concerning trust (EX1–2). An even-numbered Likert scale was chosen to avoid neutrality and support data analysis with a low number of respondents.

3.4. Respondents to the questionnaires

In 2019, 36 fish-related stakeholders responded to Q2019: nine in face-to-face meetings, 27 via an online questionnaire. In 2021, 13 responded to Q2021 (Table 1). In 2019, 11 respondents answered open-ended questions and six in 2021. Few respondents considered the questions’ topics in Q2019 or Q2021, although they mostly presented their concerns on the conditions for practising fishery. Thus, the comments were itemised and grouped with the interview analyses. Questionnaires were conducted anonymously because the study was part of the official MSP process, and there were sensitive statements on motivation and trust towards MSP planners. The distribution of age and gender among respondents was in accordance with earlier studies regarding Finland’s commercial coastal fishery, reflecting the fishers’ high average age (Table 4; [82,83,89]).

The statistical analyses were performed using IBM SPSS Statistics 27 [43]. According to the Mann–Whitney U test (e.g. [88]), the distribution of the Q2019 answers did not significantly differ according to the respondent’s status, i.e. entrepreneurs vs representatives of collectives and support organisations (N = 36, U=138.5, p = .751). The distribution of respondents between entrepreneurs and other organisations was also the same (X² =0.092, p > .1) between Q2019 and Q2021. Therefore, the respondents were not treated separately according to their status but as one group in analysing Q2019 and Q2021, respectively.

Table 4
The respondents’ a) gender and b) age (age was not asked in interviews).

a)						
Gender	Questionnaire 2019		Questionnaire 2021		Interviews 2019	
	N	%	N	%	N	%
Male	34	94	10	77	15	83
Female	2	6	3	23	3	17
Total	36	100	13	100	18	100

b)				
Age	Questionnaire 2019		Questionnaire 2021	
	N	%	N	%
< 25	0	0	0	0
25–39	8	22	1	8
40–55	14	39	2	15
56–70	7	19	7	54
> 70	4	11	2	15
N/A	3	8	1	6
Total	36	100	13	100

The median values of two groups, Q2019 and Q2021, were considered to examine the possible changes in motivation and social trust levels before the MSP cooperation in 2019 and after the MSP process in 2021. The Wilcoxon signed-rank test was used in statistical analysis, as it does not assume the data's normality and suits small sample sizes. This test was also used due to the nature of the attitude scale (e.g. [8,88]) and to indicate the possible differences in the median of pretest and post-test ranks of two interdependent samples – Q2019 and Q2021 – in a case of eight questions (MOT1–3 and ST1–5). A random sampling of the Q2019 respondents was performed to meet the number of Q2021 respondents and match the two samples.

4. Results

4.1. Perceptions of regional development and cooperation

Most of the entrepreneurs interviewed agreed that cooperation among coastal fishers, fish farmers, and downstream processing and sales function well because of the lack of mutual competition as the number of commercial coastal fishers has been decreasing (Table 5). There are fishing grounds for all the commercial fishers; all the catch quickly sells out. Fishing tourism providers are more competitive, as their services are quite expensive and used mainly by companies

Table 5

The main themes that emerged in the interviews of the entrepreneurs and fishing collectives (A, N = 14), and the experts (B, N = 4), as well as the comments in Q2019 and Q2021 (C, N = 16). The different groups are presented separately as the questions of the groups B and C were not identical and fewer in focus compared with the group A.

Main themes	Mentions	A	B	C
Regional cooperation and synergies	Plenty of cooperation among the practitioners of the fishery, no mutual competition	12		
	Challenging to cooperate with other sea users or with local administration	11		
	Cooperation with local administration and with some entrepreneurs is functional	6		
	Coastal fisheries have to recede from the way of other sectors in spatial planning or implementation of marine operations	6		7
Conflicts and threats	Weak general conditions to practice coastal fishery because of the contradictory policies	8		
	Severe fishing restrictions and difficulties in getting permits for coastal fishing and fish farming	6		
	The low esteem and poor image of coastal fishing and fish farming	7	4	
	Concerns about the deteriorating status of the marine environment, the living conditions of fish and the fish catches	3		7
	No time or resources to develop cooperation with other businesses or to have a secondary business	8	3	
Interest in developing regional collaboration	Cooperation should be local and small-scale	6		
	Lasting results seldom achieved, lots of discussions but few concrete results (especially in coastal fishery) / Long-term engagement for cooperation and development is desirable (experts)	6	4	
	Need to have an outside, neutral coordinator/activator to coordinate the cooperation and joint development	4	4	
	Networking and encounters with information dissemination in innovation and development, discussion forums in planning	3	3	2

providing recreation for their personnel or customers.

The entrepreneurs mentioned the challenges of cooperating with other users of the sea and local administrative organisations. However, cooperating with cities and municipalities got negative and positive comments, depending on what types of attitudes an interviewee had experienced. Moreover, a few examples of successful cooperation with local sales, restaurants and tourism services were noted. Fishing tourism can work well with local enterprises, such as accommodation and catering services.

Some interviewees noted that the local and regional administrations might be uninterested in supporting the fishery as it is a sector of minor importance for the local and regional economy. The generally low esteem towards coastal fishery was another reason. The interviewees mentioned these as the main reasons the fishery stakeholders' remarks are ignored in the planning and implementing of the local operations in the sea areas critical to the fishery. For example, a fisher described the planning of the test area for autonomous shipping in the Bothnian Sea: 'This reflects our position. We are always the receding ones. I don't mean this planning process; I mean the whole thing. We have such a problem with confidence in that sense. In a way, we are walked over as soon as it is possible.' Furthermore, some of the questionnaires' comments presented the concern that the fishery industry's needs are ignored to benefit other interests. A few respondents called for more clearly defined strategies and targets for the fisheries as well as joint forums to negotiate.

4.2. Threats and conflicts

The general conditions for practising and developing coastal fishery were perceived as weak (Table 5). The entrepreneurs emphasised the role of weakly defined policies – contradictory to what is expected of Finland's coastal fishery industry. National and EU-wide regulations were noted as the fishery industry's main hindrance. Severe restrictions and complicated permitting processes were mentioned or referred to in most of the interviews. One entrepreneur stated, 'The conflict is when you talk about locally produced food and the blue bioeconomy, and then, at the same time, one [our] line of business is run down, so it is a political matter.' This was the main reason for low trust in the future of the coastal fishery. Thus, many interviewees dismissed the questions about cross-sector development or regional innovation. One fisher said, 'We need to get this beginning of the production right before we can innovate: the fish must be able to be fished'.

Half the entrepreneurs and all interviewed experts thought coastal fishery suffered from low public esteem and had a poor image among the potential workforce. For example, fishery activities may disturb summer cottagers. The entrepreneurs mentioned a lack of information, personal conflicts, and social and public media provoking conflict as reasons for the disputes. Some entrepreneurs and experts noted that inland fishing, which inland municipalities support, has started thriving in recent years with innovations, such as developing new food products from nuisance fish. According to interviewees, the public and authorities have a greater appreciation for inland fishing.

The interviews and questionnaire comments concerned the deterioration of the aquatic environment and pressures weakening the coastal fishery and spawning grounds. Overly protected seals and great cormorants eat fish and expel them from coastal waters. Questionnaire comments called for considering the industry's effects on the aquatic environment more in the planning stage. Specifically, the waterborne emissions of heavy industry were mentioned. Furthermore, it was noted that the permitting processes of the industry should better evaluate the effluent's effects on the aquatic environment.

The problem of fishing tourism is the high uncertainty of catches, as the availability and predictability of quality fish catches are low on the Satakunta coast. Fishers also noted this uncertainty as a potential cause of conflicts between commercial fishers and recreational fishers. Some interviewees said they are unjustly blamed for the degeneration of the

fish catches and aquatic environment, even though the reasons are more complex. A fisher stated in the 2019 questionnaire that ‘Catches are constantly getting smaller. It is not because of overfishing. There are other factors, like contaminated oxygen-free spawning grounds, abundant cormorant herds, and large numbers of seals. Fish reproduce a lot but only if the roe has favourable conditions. So, billions of rotten eggs will not evolve into fish due to a lack of oxygen. First comes the management of the water system, and then the catches get better.’

4.3. Willingness in developing the fishery business and cross-sector cooperation

Many of the entrepreneurs interviewed mentioned they had neither the time nor the resources to participate in the co-development of innovations or cross-sector cooperation. They admitted it would provide possibilities to grow their business. However, the interviewees felt that coastal fishing is such a time-consuming and demanding occupation that they must practice it full-time. Any secondary business or job would interfere with the fishing operations, decrease profitability and require heavy investments (Table 5).

Interviewees mentioned that cooperation or co-development should be local and small-scale, as catches are uncertain and variable depending on the season. Examples of the ideas presented included sightseeing at fish farms, supplying seasonal fish to local restaurants, or joint marketing of fishing tourism. A few fishers interviewed mentioned the potential to develop cooperation with enterprises connected to tourism. However, tourism was mentioned as a business sector with plenty of cooperation as well as development ideas and projects, but few realised. Bureaucracy and the need for additional resources were noted as hindrances. For example, there are different safety regulations for fishing vessels and those carrying passengers.

Successful examples of cooperation were direct sales to consumers, as in town markets, where fish is a valued dish on Finland’s west coast. While locally produced food is trending, consumers appear to demand a continuous supply year-round, which the local fishery can seldom produce. Thus, cheaper farmed salmon from Norway has been imported. The joint marketing projects of coastal fish products were mentioned as a potential form of cooperation. However, some interviewees considered tight fishing quotas and supply uncertainty as challenges for joint marketing efforts. A fisher representing a fishing collective described the contradiction between the demands to innovate and fishery’s tight regulations: ‘According to the European model, these innovations are of course brought here to us, but they always fall into it that you can’t fish. And fish farmers can’t get permits to farm, no matter how much market there would be.’

Some interviewees and all four experts mentioned that a neutral coordinator would benefit in fostering innovations and cooperation, as most of the companies in the fishery industry are small, with limited resources. The coordinator would have to understand the fishery’s needs and conditions dictating their work. One expert stated, ‘If a fisher needs to go fishing, he will, despite how interesting or beneficial an event would be’.

The cooperation or development should provide concrete results for the fishers but not require too much of their time or resources. All four experts emphasised the significance of long-term engagement to the fishery’s cooperation and development, as single projects seldom progress to concrete, long-term business. Coordinators earning the entrepreneurs’ trust is also necessary, and long-lived networking activities will allow the entrepreneurs and coordinators to develop mutual trust. Thus, according to the experts, the networking and development of the fishery industry need more permanent contexts, such as the EU’s innovation programs.

4.4. Intrinsic motivation and social trust reflecting success of collaborative practices in MSP

The results of questionnaires show that the motivation to participate in MSP in the Satakunta region did not significantly differ in cases of autonomy and competence (the medians of Q2019 and Q2021, see Fig. 3, MOT1–2). Regarding autonomy, 92% of respondents considered the MSP their business initially and 83% after the process was complete (MOT1). In Q2019, 83%, and in Q2021, 73% of respondents considered themselves competent to participate in MSP (MOT2). However, regarding relatedness, the motivation levels were lower: 67% of respondents in Q2019 and 42% in Q2021 considered themselves essential parts of the planning community (Fig. 3, MOT3). A Wilcoxon signed-rank test indicated that Q2021’s median was significantly lower than Q2019’s ($p = .031$).

Overall, at the beginning of the MSP process, the social trust levels towards maritime spatial planners were lower than the motivation levels to participate in MSP (Fig. 3, ST1–5). After the MSP process, the social trust levels were higher than the motivation levels. Before and after the MSP process, the highest levels of trust appeared regarding transparency (ST2) and objectivity (ST1), whereas the lowest levels of trust were found in the lack of perceived competence (ST4). In Q2019, 58%, and in Q2021, 69% of respondents trusted planners to take care of their planning needs (ST3); caring also referred to experienced similar values (ST5). A total of 56% of respondents in Q2019 and 54% in Q2021 found their salient values and perceived planners’ values (ST5) to be coherent at least on some levels. In turn, almost half the respondents doubted planners’ trustworthiness before and after the MSP process. After the MSP process, 58% of the respondents felt they had enough information regarding the MSP, and 54% thought the MSP process had considered the needs and scope for the coastal fisheries’ action (Fig. 3b, EX1–2).

5. Discussion

5.1. Challenges faced by coastal fishery affect their attitudes towards regional development

The main themes manifested in the study were considerable degradation of the coastal fishery industry, the contradicting aspirations of blue economy growth and environmental protection, and the low esteem towards fishery as an occupation, negatively affecting the willingness and perceived opportunities to develop coastal fishery businesses independently or with other stakeholders and sea users. The ideas of synergies or co-development opportunities remained rather vague and general. The need to address current challenges was emphasised.

During the past century, fishery evolved from industrial productivity to post-productivism in industrialised countries, representing the transformation to environmental protection, recreation, and leisure use. Then the fishery industry developed towards neo-productivism, which considers ecological and social sustainability connected to international regulation and global goals [77,84]. This study reflected that this shift has made fishery stakeholders’ operational environment more complex and supports the notion that the decline in small-scale coastal fishing’s profitability and that fish stocks are ineffectively recovered indicate that the EU’s aims of socially, economically, and environmentally sustainable fisheries policy have not yet been achieved [89].

Sectoral policies and management strongly affect fishers’ scope of action. Tight top-down restrictions and heavy permitting processes were considered coastal fishery’s main challenges, complying with earlier studies noting that severe restrictions on local livelihoods and the inadequate inclusion of alternative and local knowledge in management measures are major challenges for small-scale coastal fisheries (e.g. [3, 89]). The challenges include, for example, the conflicts stemming from protecting the great cormorants, grey seals, and Baltic ringed seals. The strict interpretation of EU directives concerning nature conservation in Finland has narrowed the consideration of the great cormorant

A	B	Disagree 2019	Agree 2019	C	N
MOT1	8 %			92 %	36
MOT2	17 %			83 %	36
MOT3	33 %			67 %	36
ST1	39 %			61 %	36
ST2	31 %			69 %	36
ST3	42 %			58 %	36
ST4	50 %			50 %	36
ST5	44 %			56 %	36

(a)

A	B	Disagree 2021	Agree 2021	C	N
MOT1	17 %			83 %	12
MOT2	27 %			73 %	11
MOT3	58 %			42 %	12
ST1	8 %			92 %	13
ST2	8 %			92 %	13
ST3	31 %			69 %	13
ST4	46 %			54 %	13
ST5	46 %			54 %	13
EX1	42 %			58 %	12
EX3	46 %			54 %	13

(b)

Fig. 3. The results of the questionnaires a) Q2019 and b) Q2021. A is the abbreviation of the variable measured (see Table 3), B is the total percentage of the disagreeing respondents, C is the total percentage of the agreeing respondents, and N is the total number of respondents that answered the statement. Likert scale equivalents: Black = Completely disagree/Completely agree, Dark grey = Mostly disagree/ Mostly agree, Light grey = Slightly disagree/Slightly agree.

population's local impact [64]. EU's seal product trade ban has annihilated seal hunting as a traditional source of livelihood in Finland (e.g. [86]). Seals not only destroy nets and catches, but the continuous conflict affects public opinion and weakens the attractiveness of the coastal fishery industry [77].

The hierarchical top-down management style in environmental management and nature conservation reduces the possibilities of collaborative planning and management efforts to foster regional development (cf. [59]). This study reflects the difficulties of fulfilling the participatory ideals of collaborative governance (see also, e.g. [64,72]). Conflicts with public administration have been observed to lessen the fishers' and fish farmers' trust in institutions and civil servants [11,45, 64,73]. The study's diversity of opinions regarding the MSP planners' similar values with the fishery stakeholders and planners' ability to care for fishery stakeholders' needs indicated critical and reserved trust towards planners (see also, e.g. [64,72,75]). Reserved trust and respondents' relatively high motivation levels may reflect the coastal fisheries' challenging position in the post-productivist setting of society (cf. [77]).

5.2. First MSP round was not a game changer for the coastal fishery

Fishery stakeholders' ambivalence towards the MSP is understandable as such may not create a positive or win-win situation [45]. Continuous collaboration with inclusive and fair dialogue is considered crucial in levelling the playing field for less powerful stakeholders (e.g. [33,95]). Finnish law stipulates that the needs of maritime uses and interests must be explored and reconciled [38]. Therefore, the first MSP round was designed according to the principles of stakeholder inclusion to provide all stakeholders equal chances to participate and be heard ([30,62]; cf. [34,51,92]). A bottom-up approach was applied as the

future scenarios, visions, target states, roadmaps and drafting of the plan were made in collaboration with stakeholders ([30,62]). After the consultation of the draft plan in the spring of 2020, interaction with regional fishery stakeholders was more one-sided.

Throughout the MSP process, most respondents felt a proper level of social trust towards the MSP planners regarding the information's accuracy, objectivity, availability, and the process's transparency, probably reflective of Finland's high levels of institutional trust (cf. [66,91]). Concerning engagement in the MSP process, participants' understanding of the significance of participation in the process and their self-confidence regarding their competence remained high. However, a significant change was the waning feeling of relatedness as the respondents did not see themselves as a relevant part of the MSP community after the process. The MSP's strategic nature may have disappointed fishery stakeholders [38,61].

The decreased sense of relatedness may also signal failed collaboration regarding the fishery participants of MSP. The level of interaction may have been inadequate, or the levelling of the playing field has not overcome the capacity and power differences among different stakeholder groups. As a small and less powerful group than many other stakeholders, fishery stakeholders may have felt their claims were ignored in a multi-stakeholder context and decision-making, as the results of the interviews indicated (cf. [45]). The wide dispersion of post-process levels of trust would indicate the collaborative process could not consider fishery stakeholders' needs and scope of action.

The ambivalence of the fishery stakeholders would align with the results of interviews and comments emphasising the challenges coastal fishery faces. Small-scale coastal fishery was in a different position concerning capacities and power compared to, e.g. offshore wind energy, promoted by extensive location analysis stemming from high expectations to be one of the EU's primary sources of renewable energy

[99]. Coastal fishery representatives' premises to MSP were less preferable such as their challenges outlined in the interviews show. However, coastal fishing provides community values and might have importance in the regional economy, while offshore wind energy contributes to national and EU-level strategies to achieve carbon-neutral societies. Successful small-scale coastal fishing requires high societal acceptance and highly depends on local functional socio-ecological systems, whereas big operators act more on global socio-ecological systems [52]. Multiple prosperous coastal communities might have meaningful cumulative effects on societal well-being. The changes in the geopolitical situation may positively affect coastal fishery in the near future, as the need to develop and increase sustainable marine food production is highlighted in the recent EU's Farm to Fork strategy [25].

5.3. MSP as a joint forum for the sea's regional development

The coastal fishery is hard work at sea. However, the fishers' daily work produces an experimental understanding of marine ecosystem structure and complexity [35]. According to the [52] in the Finnish MSP, maritime stakeholders and spatial planners developed a more systematic comprehension of the multiple values that coastal and marine ecosystems provide and the role of humans through knowledge co-creation. Fishery stakeholders emphasised a connection between the sector's profitability and the healthy provision of marine ecosystems, such as fish stocks. These statements are in accordance with this study's results. MSP could mitigate the environmental conflict between coastal fishery and administration and promote the fishers' role more as stewards of the marine ecosystems (e.g. [7,81]) and an essential part of the functional and prosperous coastal fishery.

The results are in accordance with notions about the need to create a more comprehensive system of sea use management via the long-term interactive inclusion of stakeholders in regional development (cf. [59, 83,92,102]). MSP could provide a forum for interaction on a practical level to support sustainable regional development in the marine areas and interaction among the fishery stakeholders, authorities, and other sea users (cf. [18,27,47,50,80,97]). However, respecting and adapting to the coastal fishery stakeholders' timetables and resources is necessary to enable their participation in the regional planning and cooperation measures (cf. [45,65]).

MSP's multi-sector and multi-level governance brings together stakeholders with variable resources and capacities [45]. MSP may support finding solutions and developing the collective capacity to deal with conflicts, including reconciling the international and national regulation of nature conservation at the local level [32,44,52]. MSP allows fishery stakeholders to move from passive to proactive participation and build long-term relationships and trust with authorities and stakeholders of the sea and land-use planning (cf. [65]). Furthermore, MSP potentially provides a platform to bring the coastal fishery's scope of action to the fore, supports the visibility of the questions related to sea usage in public discourse, and applies deliberative mechanisms. Such could foster the ecosystem-based approach, which calls for the integrated governance of fishery to cocreate holistic knowledge with other

Appendix

Questions translated from the Finnish questionnaires Q2019 and Q2021 concerning the coastal fishery in the Satakunta region. Q2019 was in paper and online versions. Q2021 was optimised for desktop, tablet and mobile use.

Questions	Questionnaire 2019	Questionnaire 2021
Introduction	You are welcome to fill out the questionnaire about the motivation to participate in MSP and your perceived trust towards MSP authorities. Please read each statement carefully and respond with your honest feedback. The answers are	How did maritime spatial planning succeed in taking into account fisheries representatives? Carefully read the statements and give honest responses regarding how

(continued on next page)

business sectors and administration [5,31,37].

6. Conclusions

The MSP processes and development of the blue economy are part of the regional development framework. Both require levelling the playing field and building mutual trust among stakeholders. Even if MSP were at a strategic and broad-scale level, in-depth understanding of the local and regional socioeconomic systems and respect towards stakeholders' conditions facilitate the MSP and further the regional development of marine and coastal areas better than top-down governance. MSP authorities should earn the coastal fishery stakeholders' trust and maintain their motivation throughout the MSP process to better realise the ideals of collaborative planning. This is important for the coastal fishery as the negative experiences of sector-specific regulation and the operational environment's increasing complexity have weathered their trust towards public administration.

MSP and developing the sustainable blue economy may be bound together in practical-level governance as both require considering similar themes in reconciling different sea uses. As collaboration is crucial in regional planning, the regional development of marine and coastal areas would benefit from a joint forum for stakeholder interaction built upon MSP. In turn, collaboration may strengthen the integrative and comprehensive management of sea uses and resources.

More in-depth research is needed about reconciling different measures of EU's IMP to facilitate the shift towards more comprehensive management, especially from the less powerful stakeholders' perspective. Furthermore, the value choices and trade-offs related to the MSP and developing the sustainable blue economy should be studied further.

CRedit authorship contribution statement

Anne Erkkilä-Välimäki: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Validation, Visualization, Roles/Writing – original draft, Writing – review & editing. **Mari Pohja-Mykrä:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Validation, Roles/Writing – original draft, Writing – review & editing. **Jenny Katila:** Formal analysis, Investigation, Roles/Writing – original draft. **Riitta Pöntynen:** Conceptualization, Funding acquisition, Project administration, Writing – review & editing.

Declaration of Interest

The authors declare no competing interests.

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(continued)

Questions	Questionnaire 2019	Questionnaire 2021
	treated anonymously and will be analysed confidentially. Please circle the number below that indicates how much you agree or disagree with each statement. Circle one number for each statement.	you experienced the case. Responses are treated anonymously and analysed confidentially.
Role	Do you represent <ul style="list-style-type: none"> • Fishers • Fish farming entrepreneurs • Fishing tourism entrepreneurs • Other 	I reply to the survey <ul style="list-style-type: none"> • As a fisher • As a fish farming entrepreneur • As a fishing tourism entrepreneur • As a representative of an organisation supporting the fishery industry • Another role
Gender	<ul style="list-style-type: none"> • Male • Female • Do not wish to disclose 	<ul style="list-style-type: none"> • Male • Female • Do not wish to disclose
Age	Age ____ years	<ul style="list-style-type: none"> • under 25 • 25–39 • 40–55 • 56–70 • over 70
Open-ended questions	Do you want to mention something about trust in MSP or different organisations?	Would you like to comment on anything about this planning round's success, trust or motivation? Are there development proposals for the next planning round?
Survey question statement scale Statements in Q2019 and Q2021	Likert scale (numbers): 1 - Completely disagree; 2 - Mostly disagree; 3 - Slightly disagree; 4 - Slightly agree; 5 - Mostly agree; 6 - Completely agree I feel that it is important to participate in the maritime spatial planning process in the Satakunta region. I have knowledge that supports maritime spatial planning in the Satakunta region. I feel that I am an essential part of maritime spatial planning in the Satakunta region. I feel that it is important to participate in the maritime spatial planning process in the Satakunta region. I have knowledge that supports maritime spatial planning in the Satakunta region. I feel that I am an essential part of maritime spatial planning in the Satakunta region. I trust that maritime spatial planners in the Regional Council of Satakunta use right and fair information when planning the maritime spatial plan. I trust that maritime spatial planners in the Regional Council of Satakunta inform openly about the MSP. I trust that maritime spatial planners in the Regional Council of Satakunta understand and care for the needs of my stakeholder group. I trust that maritime spatial planners in the Regional Council of Satakunta are competent to plan MSP that takes care of the needs of my stakeholder group. I believe that maritime spatial planners in the Regional Council of Satakunta share my values about how to take my stakeholder group into consideration in MSP.	Likert scale (words): Completely disagree; Mostly disagree; Slightly disagree; Slightly agree; Mostly agree; Completely agree I received information on MSP easily and adequately. The needs and scope of action of fishery have been considered in MSP.

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